

in a mold under controlled pressure and a non-oxidizing atmosphere. The carbon foam thus produced exhibits several unique properties, perhaps the most unusual one being a very low thermal conductivity, below 1 W/m °K in the ungraphitized state. The other physical properties of these materials are largely isotropic, i.e. relatively equal in all directions. Such foams because of their method of manufacture directly from untreated (not extracted in any way) coal also contain ash that is a result of the direct foaming of the comminuted coal.

There are two major classes of prior art that must be addressed and that are clearly distinguishable from the instant product and process. These classes of prior art relate to so-called "coke" and what are referred to herein as "graphitic" foams, i.e carbon foams produced in one fashion or another from coal or petroleum pitch after the extraction of the parent material.

The preparation of pitch for the production of "graphitic" foams requires extraction or other treatment of the coal to extract the pitch from the parent coal. The pitch is then subjected to a foaming process. It is respectfully submitted that this is considerably and patentably distinguishable from the process of the present invention that uses coal directly as the starting material for the foaming process with no prior treatment, extraction etc. of any kind. As to the product, "graphitic" foams contain no ash as this is removed in the pitch extraction process. Additionally, such foams are known and utilized for their relatively high thermal

c conductivities that are significantly above those demonstrated by and now claimed for the present materials.

"Coking" to produce "coke" on the other hand, starts with coal as the starting material and simply heats it in an uncontrolled fashion until sufficient volatiles have been driven off as to provide a reducing and supporting medium useful in, for example, the production of iron from iron ore. The heating process is not controlled either as to non-oxidizing atmosphere or pressure and is not performed in a "mold". Accordingly, the "coke" produced has a structure much like Swiss cheese with large voids with masses of solid therebetween. The physical properties of these materials are entirely random and they would not be conventionally referred to as "foams".

In view of the foregoing remarks, entry of the additional claims is respectfully requested. "Clean Copy" and "Marked-Up" copies of the added claims is enclosed herewith.

Respectfully submitted,

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